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ABSTRACT

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Technical Report No. 256

IGE/MUS-E FIRST YEAR IMPLEMENTATION COST SURVEY

Final Report
Contract No. OE 5-10-154
Modification Nos. 16 & 20

by

Nancy A. Evers

Herbert J. Klausmeier, Principal Investigator

Wisconsin Research and Development
Center for Cognitive Learning
The University of Wisconsin
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Statement of Focus

Individually Guided Education (IGE) is a new comprehensive system of elementary education. The following components of the IGE system are in varying stages of development and implementation: a new organization for instruction and related administrative arrangements; a model of instructional programing for the individual student; and curriculum components in prereading, reading, mathematics, motivation, and environmental education. The development of other curriculum components, of a system for managing instruction by computer, and of instructional strategies is needed to complete the system. Continuing programmatic research is required to provide a sound knowledge base for the components under development and for improved second generation components. Finally, systematic implementation is essential so that the products will function properly in the IGE schools.

The Center plans and carries out the research, development, and implementation components of its IGE program in this sequence: (1) identify the needs and delimit the component problem area; (2) assess the possible constraints—financial resources and availability of staff; (3) formulate general plans and specific procedures for solving the problems; (4) secure and allocate human and material resources to carry out the plans; (5) provide for effective communication among personnel and efficient management of activities and resources; and (6) evaluate the effectiveness of each activity and its contribution to the total program and correct any difficulties through feedback mechanisms and appropriate management techniques.

A self-renewing system of elementary education is projected in each participating elementary school, i.e., one which is less dependent on external sources for direction and is more responsive to the needs of the children attending each particular school. In the IGE schools, Center-developed and other curriculum products compatible with the Center's instructional programing model will lead to higher student achievement and self-direction in learning and in conduct and also to higher morale and job satisfaction among educational personnel. Each developmental product makes its unique contribution to IGE as it is implemented in the schools. The various research components add to the knowledge of Center practitioners, developers, and theorists.

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Richard Mesenburg, Consultant, IGE/MUS-E, Minnesota Department of Education

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Contents

	Page
ACKNOWLEDGMENTS	iv
LIST OF TABLES	vii
ABSTRACT	ix
I. INTRODUCTION	1
IGE/MUS-E	1
Purpose of the Survey	2
Cost Studies in Education	2
Limitations of the Survey	3
II. DESIGN AND METHODOLOGY	5
Selection of the Sample	5
Data Collection Process	7
III. ANALYSIS OF THE DATA	9
Treatment of the Data	9
Presentation of the Data	9
IV. SUMMARY, CONCLUSIONS, AND IMPLICATIONS	33
Summary	33
Findings and Conclusions	34
Implications	36
BIBLIOGRAPHY	37
APPENDICES	39
A: Organizational Chart of a Multiunit School	39
B: Instructional Programing Model	43
C: Forms Used in This Study	47

List of Tables

Table		Page
1	Selected Characteristics of Schools Included in the Final Sample	6
2	Vandalism (Actual Costs)	10
3	Pupil Absenteeism	11
4	Change in the Number of Certified Teachers	12
5	Change in the Number of Paid Paraprofessionals	13
6	Change in the Number of Central Office Personnel	14
7	Change in the Number of Special Teachers	15
8	Change in the Number of Substitute Teachers	16
9	Costs for Unit Leaders' Salaries	17
10	Change in Other Certified Teachers' Salaries	18
11	Change in Paid Paraprofessionals' Salaries	19
12	Change in Substitute Teachers' Salaries	20
13	Change in Cost for Staff Development Inservice Materials	21
14	Change in Cost for Staff Development Workshops and Conferences	22
15	Change in Cost for Staff Development Consultant Services	23
16	Change in Cost for Special Expendable Materials	24
17	Change in Cost for Special Equipment	25
18	Change in Efficient Use of Materials	26
19	Change in Efficient Use of Equipment	27
20	Change in Costs Related to School Plant and Furnishings	28
21	Sources of Funding	29
22	Estimated Costs for 1972-1973	30
23	Summary Information	31
24	Summary Information (Ranges and Medians)	32

Abstract

The purpose of this survey was to identify any increase or decrease in expenditures among a stratified sample of schools during their first year of implementing the system of Individually Guided Education in the Multiunit Elementary School (IGE/MUS-E). IGE/MUS-E is a comprehensive educational system incorporating several innovative educational developments including nongraded multi-aged grouping patterns, shared decision making, differentiated staffing, a hierarchical team approach to instructional organization, and an instructional programing model for the individual student.

The basic question of the study was: Are there any increases or decreases in expenditures in the categories of student costs, staff costs, staff development, instructional materials and equipment, and plant and furnishings among a stratified sample of schools during their first year of implementing IGE/MUS-E? Data were collected from a sample of 39 schools in eight states. The "Survey of Costs to Implement IGE/MUS-E" instrument was developed and employed to collect data. Descriptive statistical analyses were utilized. The range of scores and the median score for the various program elements were reported.

The analyses of the data revealed the following:

In the area of student costs,

1. The majority of the schools reported no increase or decrease in expenditures for vandalism and pupil absenteeism.

In the area of staff costs,

2. The majority of the schools reported no increase or decrease in the number of certified teachers, central office personnel, special teachers, substitute teachers, paid student teachers, and custodians.
3. The majority of the schools reported an increase in the number of paid paraprofessionals; the median increase was four.
4. Disregarding normal salary increments, the majority of the schools reported no increase or decrease in expenditures for salaries of unit leaders, certified teachers, paid paraprofessionals, substitute teachers, special teachers, central office personnel, paid student teachers, and custodians.

In the area of staff development,

5. The majority of schools reported an increase in expenditures for inservice materials; the median reported increase was $250.
6. The majority of the schools reported an increase in expenditures for workshops and conferences; the median reported increase was $500.
7. The majority of the schools reported no increase or decrease in expenditures for consultant services.

In the area of instructional materials and equipment,

8. The majority of the schools reported no increase or decrease in expenditures for instructional materials and equipment.

In the area of plant and furnishings,

9. The majority of the schools reported no increase or decrease in expenditures for school plant and furnishings.

Ancillary items:

10. The majority of the schools reported increases in the efficient use of materials and equipment.

11. Half of the schools received additional revenue specifically designated for IGE/MUS-E implementation.

12. Schools varied substantially with respect to estimated costs for 1972-73 in the areas of staff costs, staff expenditures, staff development expenditures, instructional materials and equipment, and physical plant and furnishings.

I
Introduction

Through a review of the research conducted on change in education it becomes clear that conclusive evidence regarding change is still meager. However, a theoretical and commonsense basis for believing in the efficacy of planned change, or the planning of change, does exist.[1] A great deal has been written about the need for institutional change to meet the challenges of modern times. Among those challenges which confront our educational system today is the attempt to provide for individual differences among learners. An alternative educational plan which seeks to meet that challenge is the system of Individually Guided Education in the Multiunit Elementary School (IGE/MUS-E).

IGE/MUS-E

The Wisconsin Research and Development Center for Cognitive Learning (R & D Center) working cooperatively with other educational agencies has developed a system of individually guided education (IGE) at the elementary level. IGE is a comprehensive system of education designed to produce higher educational achievements by providing for individual differences among students in rate of learning, learning style, and other characteristics.[2]

The IGE system has seven components (see Klausmeier et al., 1971, p. 17 ff.). The first component is "an organization for instruction, a related administrative organization at the building level, and another arrangement at the central office level, together called the MUS-E." (Refer to the organizational chart, Appendix A.) The organizational-administrative structure of MUS-E is designed to provide for open communication among school personnel, educational and instructional decision making at the appropriate levels, and accountability by educational personnel at various levels.

The second component is a model of instructional programing for the individual student. (Refer to Appendix B.) This model is designed to provide for differences among students according to their learning rates, learning styles, motivation, and so forth, and to take into account the school's educational objectives.

The third component is a model for developing measurement tools and evaluation procedures. The model includes preassessment of learner readiness, assessment of progress and final achievement with criterion-referenced tests, feedback to the teacher and the learner, and evaluation of the IGE design and its components.

The fourth component is curriculum materials, related statements of instructional objectives, and criterion-referenced tests and observation schedules. It is felt that educational change must affect curriculum as well as other aspects. In order to assist in making the change, the R & D Center is developing materials and instructional procedures in reading, prereading, mathematics, environmental education, and motivation.

The fifth component is a program of home-school communications that reinforces the school's efforts by generating the interest and encouragement of parents and other adults whose attitudes influence pupil motivation and learning.

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[1] Research for Better Schools, Inc. Administering for Change. Basic Program Plan. Philadelphia, Pennsylvania: Research for Better Schools, Inc., 1969. P. A1.

[2] Klausmeier, H. J., Quilling, M. R., Sorenson, J. S., Way, R. S., & Glasrud, G. R. Individually Guided Education and the Multiunit Elementary School: Guidelines for Implementation. Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, 1971. Pp. 20-24.

The sixth component is facilitative environments in school buildings, school system central offices, state education agencies, and teacher education institutions. Instrumental in producing these environments is a staff development program which includes inservice and campus-based educational programs to prepare personnel for the new roles implied by the other six components. State networks comprised of the state education agency, local school systems, and teacher education institutions are being established to install, adapt, and refine IGE practices.

The seventh component is continuing research and development to generate knowledge and to produce tested materials and procedures. Development and development-based research should be conducted by each school in an effort to refine the total learning program.

The multiunit organization has been described as "the first realistic alternative in this century to the age-graded, self-contained classroom organization for instruction."[3] The multiunit school concept has been implemented quite rapidly since its inception. Implementation began in 1965-66 with a few schools in Wisconsin. The Wisconsin Department of Public Instruction selected MUS-E for statewide demonstration and installation in the 1968-69 school year, and the Department of Health, Education and Welfare and the Office of Education selected MUS-E for nationwide installation beginning in the 1971-72 school year. By the 1972-73 school year approximately 1000 schools throughout the country had adopted the program.

Purpose of the Survey

The purpose of this survey is to identify any increase or decrease in expenditures among a stratified sample of schools during their first year of implementing IGE/MUS-E. Specifically stated performance objectives for the implementation of IGE/MUS-E imply that IGE/MUS-E should be sound in conception, practical in terms of anticipated benefits in relation to time and money expended, and adaptable to conditions in a variety of local school settings. The Wisconsin R & D Center, as part of its obligations to educational personnel at the national, state, and local levels, should supply fiscal information concerning the costs of implementing IGE/MUS-E during the first year.

Cost Studies in Education

Three types of cost studies in education have been identified.[4] The first cost studies were conducted by those involved in the "scientific management" movement.[5] These studies dealt with unit costs for curricular offerings and were used to justify the exclusion or retention of specific courses primarily on the basis of the cost per unit of instruction associated with them. This type of study came under attack on the basis that it overemphasized cost and ignored the benefits.

The second type of cost study conducted in education was in search of a "cost-quality" relationship.[6] Mort and his associates conducted such studies over a 30-year period. These studies demonstrated that the quality of education provided to students is directly related to the amount of money expended for each student.

The third type of cost study in education is the comparison of school expenditures among states and among school districts. The U.S. Office of Education and many state departments of education and education associations regularly publish reports which give per-pupil expenditures in various functional categories made by states, school districts, and categories of districts. Reports such as Rankings of the States and Financial Status of the Public Schools, published by the National Education Association, provide information on per-pupil receipts and expenditures for education in the various states. The "Cost of Education Index" published annually for the past 11 years by School Management

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[3] Ibid., P. 3.

[4] Rossmiller, R. A., Hale, J. A., & Frohreich, L. E. Educational Programs for Exceptional Children: Resource Configurations and Costs. Madison, Wisconsin: National Educational Finance Project Special Study No. 2, Department of Educational Administration, University of Wisconsin, 1970. Pp. 27-28.

[5] Callahan, R. E. Education and the Cult of Efficiency. Chicago: University of Chicago Press, 1962. Pp. 19-125.

[6] Mort, P. R., Reusser, W. C., & Polley, J. W. Public School Finance. 3rd ed. New York: McGraw-Hill, 1960. Pp. 77-89.

is another source of information concerning school expenditures, providing statistical data on public school spending by expenditure and by national region.[7]

A review of the literature indicates that most of the cost studies in education have either compared items of current expense among districts or over a time dimension, or have compared the cost of education with the cost of municipal services. Expenditures for education are generally made according to school level, secondary or elementary, rather than on the basis of educational programs.[8]

Limitations of the Survey

This survey is limited to costs related to implementing IGE/MUS-E. It was designed to identify any increases or decreases in expenditures among schools implementing this new educational system. Causality cannot be inferred from any relationship in the survey. Hopefully the findings of the survey will point to areas for further investigation.

The study is further limited through the data-collection process. It is difficult to obtain exact data regarding configurations of material resources applied to a specific education program because of the manner in which school accounting systems are set up. It is realized that many of the reported costs are estimated figures.

Another limitation of the study is the fact that the criteria for selecting the sample did not include a program quality factor. Therefore, the reported data cannot be said to represent the "best" or the "poorest" operating IGE/MUS-E programs; the data only represent the types of schools included in the study.

The survey was also limited in the sample selection criteria: (a) the schools were fully functioning multiunit schools (they had the organizational and instructional components of IGE/MUS-E with the exception of the systemwide policy committee); and (b) the schools were beginning their second full year of multiunit operations, making their first year of implementation the 1971-72 school year.

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[7] Rossmiller et al. P. 28.

[8] Ibid.

II
Design and Methodology

Selection of the Sample

The population of multiunit elementary schools from which the survey sample was drawn was composed of schools which had implemented the multiunit organizational pattern as early as 1965 and as recently as 1972. For this survey it was decided that out of that general population a stratified sample of schools which had first implemented IGE/MUS-E in the fall of 1971 would be selected. This specific implementation date was selected because it marked the first time that the implementation in each school was accomplished following the R & D Center's implementation strategy and using a common set of inservice materials. This data also permitted the study to be conducted using the most recent and complete one-year cost figures.

The IGE state coordinators of states which had implementation contracts with the R & D Center were asked to assist in identifying the sample of schools for the survey. Those states asked to participate were Colorado, Connecticut, Illinois, Indiana, Minnesota, New Jersey, Ohio, South Carolina, and Wisconsin (refer to Appendix C).

The sample was stratified into three levels by the school's pupil population size: small, less than 300 pupils; medium, 300 to 700 pupils; and large, more than 700 pupils. Each coordinator was asked to select two schools for each of the three stratification levels. Criteria for the selection of each school were (a) the school must be a fully functioning multiunit school (having the organizational and instructional components of IGE/MUS-E with the exception of the systemwide policy committee); and (b) the school must be beginning its second full year of multiunit operations, making its first year of implmentation the 1971-1972 school year.

Fifty schools from all of the previously identified states were recommended. However, the recommended New Jersey schools did not meet the selection criteria due to the fact that actual implementation did not occur until the fall of 1972. Therefore, the total number of recommended schools which qualified to participate was 44: six from Colorado; five from Connecticut; six from Illinois; six from Indiana (Indianapolis); six from Minnesota; four from Ohio; five from South Carolina; and six from Wisconsin.

A telephone call was placed to each school principal explaining the cost survey and asking him to participate by responding to the cost survey instrument. All principals agreed to participate. Ultimately, 39 schools returned completed instruments. These 39 schools represent 89% of the 44 sample schools. The general characteristics of the 39 schools which comprised the final sample are shown in Table 1.

The type of area in which each school was located was identified by the respondent's selecting one of the following seven classifications which best described the school district:

1. Large city - total population of 250,000 or more. Center of a metropolitan area with contiguous satellite suburbs.
2. Medium-sized city - total population of 50,000 to 250,000. Not adjacent to a large city.
3. Small city - total population of 10,000 to 50,000. Not adjacent to a large or medium-sized city.
4. Established suburb - adjacent to a large or medium-sized city. A major portion of the land area developed. Relatively stable pattern of population growth.
5. Developing suburb - adjacent to a large or medium-sized city. A major portion of the land area not yet developed. Relatively stable pattern of population growth.
6. Agricultural service center - total

TABLE 1
SELECTED CHARACTERISTICS OF SCHOOLS INCLUDED IN THE FINAL SAMPLE

School	No. Elementary Schools in District	No. MUS-E's in District	Type of Area	1971-72 ADA	Estimated Average Family Income
Small					
1	7	2	Small City	189	$5,000 - 9,999
2	18	3	Small City	240	*
7	5	5	Dev. Suburb	*	*
13	4	3	Agr. Serv. Ctr.	*	*
18	1	1	Small City	207	5,000 - 9,999
34	7	*	Agr. Serv. Ctr.	200	*
40	108	10	Large City	92	5,000 - 9,999
41	108	10	Large City	94	5,000 - 9,999
19	5	1	Agr. Serv. Ctr.	72	*
28	8	1	Rural Area	100	Less than 5,000
33	7	1	Small City	240	*
Medium					
3	9	1	Estab. Suburb	422	*
4	12	5	Small City	632	*
8	6	2	Dev. Suburb	332	15,000 & above
10	20	2	Estab. Suburb	535	5,000 - 9,999
11	4	1	Estab. Suburb	570	*
12	4	4	Small City	349	10,000 - 14,000
14	19	5	Small City	505	5,000 - 9,999
16	1	1	Estab. Suburb	572	5,000 - 9,999
20	420	1	Agr. Serv. Ctr.	*	*
24	54	7	Med.-sized City	374	Less than 5,000
25	*	1	Med.-sized City	424	*
29	11	1	Agr. Serv. Ctr.	354	Less than 5,000
30	14	1	Small City	424	*
35	27	5	Med.-sized City	355	*
36	130	4	Large City	560	*
38	7	2	Dev. Suburb	662	*
42	108	10	Large City	448	*
17	3	1	Agr. Serv. Ctr.	608	*
15	6	2	Dev. Suburb	390	10,000 - 14,000

(continued)

TABLE 1 (cont.)

School	No. Elementary Schools in District	No. MUS-E's in District	Type of Area	1971-72 ADA	Estimated Average Family Income
Large					
6	8	1	Dev. Suburb	*	5,000 - 9,999
21	2	1	Agr. Serv. Ctr.	774	*
26	6	3	Agr. Serv. Ctr.	720	15,000 & above
31	6	3	Dev. Suburb	705	*
32	29	2	Small City	682	5,000 - 9,999
44	108	10	Large City	*	5,000 - 9,999
45	108	10	Large City	*	*
23	12	3	Estab. Suburb	958	*
5	6	1	Dev. Suburb	790	*

*Not reported.

population less than 10,000. Substantial portion of school enrollment drawn from area outside the population center. Economy oriented to services or agriculturally related industry.

7. Other - (Indicate characteristics).

The estimated average family income level of families with children in attendance at each school was identified by the respondent's selecting one of the following four classifications: less than $5,000; $5,000 - $9,999; $10,000 - $14,000; and $15,000 and above.

Data Collection Process

Data Instrument

Numerous difficulties were experienced by researchers who attempted to obtain comparable data regarding expenditures for a particular educational program from the accounting records maintained by school districts. Traditional school accounting fails to provide data regarding the application of material and human resources to a specific educational program in the schools. It therefore was decided to develop a survey instrument which would clearly delineate the program elements with which this survey was concerned and which would require the data to be cast in a particular format.

It was necessary to establish an a priori categorization of the program elements to be examined before the instrument could be designed. After consulting with school finance experts and reviewing related literature, it was decided that information should be acquired concerning the broad areas of student costs, staff and staff development expenditures, instructional materials and equipment, physical plant and furnishings, and sources of funds. Within each of these broad areas additional program elements were identified and provided for.

The instrument developed for this investigation consisted of four parts: I, "Descriptive Information Concerning Your School and Community"; II, "Worksheet for Determining Increased, Decreased, or Constant Costs as a Direct Result of Implementing IGE/MUS-E During 1971-72"; III, "Summary of Worksheet Information"; and IV, "Information Regarding Each Workshop Category." Part II was prefaced with the directions necessary for ensuring proper response procedures. These directions referred the respondent to Part IV for information regarding each main category of the worksheet. An introductory letter and "Rationale and General Instructions" cover sheet were integral parts of communicating the survey's intent and significance to the respondents (refer to Appendix C).

The structure of school accounting oftentimes does not provide data regarding the configuration of human and material resources being applied to specific educational programs

within the schools. Therefore, the principal of each of the schools was asked to respond to the instrument because it was thought that he most likely would be able to obtain the appropriate data.

Part I, "Descriptive Information Concerning Your School and Community," was accepted as having face validity. The selected items were included on the basis of their presumed descriptive value to the study. During the pilot phase and actual survey, responses to these questions indicated that this part of the instrument was unambiguous and did obtain the information being sought.

The survey instrument was reviewed, piloted, and critiqued by two principals in two separate Wisconsin school districts on the basis of the following criteria: (a) clarity of the intent of the question, (b) appropriateness of the item for the survey, and (c) facility with which a principal would be able to provide the desired information. After receiving the principals' responses a few modifications were made on the instrument.

Data Collection

Contact was made with each of the state IGE/MUS-E coordinators during August and September 1972. Selection of the sample of schools in each state was completed by October 24, 1972, at which time the survey instrument was mailed to the participating principals. A requested return date of November 10, 1972, was identified.

A week following the November 10 date telephone calls were made to those principals who had not returned their surveys. The phone call served two purposes: (a) to offer assistance if the participant was having difficulty in responding to any items and (b) to encourage the participant to respond to the instrument and return it at his earliest convenience. During the second week in December, 1972, another phone call was made to a few principals who still had not returned the information. January 8, 1973, was the cutoff date for receiving data.

III
Analysis of the Data

The purpose of this section is to present the findings resulting from analysis of the data obtained from the sample of schools. The analyses were based upon one primary source, the data instrument soliciting information relative to background descriptive information and expenditures.

Treatment of the Data

The nature of the sample precluded the application of inferential statistical treatments. Descriptive statistical analyses were utilized, and the items of the range of scores and median score for the various program elements will be reported. It was decided not to report the means because there was wide variability in the reported figures and reporting the mean might misrepresent the data. The range and median are used because the median may be thought of as the score of the "typical" case in a distribution or set of data.

Presentation of the Data

In obtaining data regarding costs involved in implementing IGE/MUS-E, it became critical that the respondents report only increases or decreases in expenditures which came about as a direct result of implementing IGE/MUS-E. The respondents were told to indicate whether costs increased, remained the same, or decreased for each identified item and if there was an increase or decrease, to report that amount. Five categories of costs were identified: (a) student costs, (b) staff expenditures, (c) staff development expenditures, (d) instructional materials and equipment expenditures, and (e) plant and furnishings expenditures.

Under student costs were the items of vandalism and pupil absenteeism. Table 2 presents the distribution of marks representing increase, remain the same, and decrease for costs of vandalism in addition to the reported increases and/or decreases in amount. The range and median score for the entire sample and the range and median for the schools reporting the amount of change were identified.

Table 3 presents the distribution of marks representing increase, remain the same, and decrease in pupil absenteeism. The data for this item were reported in units of percentage per day absenteeism. The reported increases and/or decreases in percentage per day absenteeism are presented. The range and median score of absenteeism for the entire sample and the range and median for the schools reporting a change were identified.

TABLE 2
VANDALISM (ACTUAL COSTS)

School	Increase	Remain the Same	Decrease	Amount
SMALL				
1		X		
2			X	-$175
7			X	*
13		X		
18		X		
34			X	- 100
40		X		
41		X		
19		X		
28		X		
33		X		
MEDIUM				
3				
4		X		
8		X		
10			X	*
11		X		
12			X	*
14		X		
16		X		
20		X		
24		X		
25		X		
29			X	- 100
30		X		
35		X		
36		X		
38		X		
42			X	- 750
17		X		
15		X		
LARGE				
6		X		
21		X		
26		X		
31		X		
32				
44		X		
45		X		
23		X		
5		X		

*Not Reported

Range and median for entire sample: Range: -$750 to 0; Median: 0

Range and median for the 4 schools reporting the amount: Range: -$750 to -$100; Median -$325

TABLE 3
PUPIL ABSENTEEISM (% PER DAY)

School	Increase	Remain the Same	Decrease	Amount
SMALL				
1		X		
2			X	-3%
7		X		
13			X	-2%
18		X		
34		X		
40		X		
41		X		
19		X		
28		X		
33		X		
MEDIUM				
3	X			+7%
4			X	-4%
8		X		
10			X	-10%
11		X		
12			X	*
14			X	-2%
16		X		
20			X	*
24			X	-10%
25		X		
29			X	-5%
30	X			+2%
35		X		
36			X	-2%
38	X			+1%
42			X	-1%
17		X		
15		X		
LARGE				
6		X		
21		X		
26		X		
31	X			+4%
32				
44		X		
45		X		
23		X		
5		X		

*Not Reported

Range and median for entire sample: Range: -10% to +7%; Median: 0

Range and median for the 13 schools reporting change: Range: -10% to +7%; Median: -2%

Two types of data were gathered regarding staff expenditures; one type dealt with the number of positions, and the other type dealt with salary. Data were analyzed for the positions of certified teachers, paid paraprofessionals, paid student teachers, central office personnel, special teachers, substitute teachers, and custodians. Tables 4 through 8 present the distributions of marks representing increase, remain the same, and decrease in number of positions. Each table also presents the number of increased or decreased positions. The range and median score of number of positions were identified for the entire staff and for the schools reporting the number change. Only one school, School 14, reported an increase in number of paid student teachers, and only School 21 reported an increase in number of custodians.

TABLE 4
CHANGE IN THE NUMBER OF CERTIFIED TEACHERS

School	Increase	Remain the Same	Decrease	Number
SMALL				
1			X	-1
2		X		
7		X		
13		X		
18		X		
34		X		
40		X		
41		X		
19			X	-.5
28		X		
33		X		
MEDIUM				
3	X			*
4			X	-3
8		X		
10				
11		X		
12		X		
14		X		
16		X		
20		X		
24		X		
25		X		
29		X		
30		X		
35		X		
36	X			+4
38		X		
42			X	-1
17	X			*
15		X		
LARGE				
6			X	-3
21		X		
26		X		
31		X		
32				
44		X		
45		X		
23		X		
5		X		

*Not Reported

Range and median for entire sample: Range: -3 to +4; Median: 0

Range and median for the 6 schools reporting the number change: Range: -3 to +4; Median: -1

TABLE 5
CHANGE IN THE NUMBER OF PAID PARAPROFESSIONALS

School	Increase	Remain the Same	Decrease	Number
SMALL				
1		X		
2	X			*
7	X			+16
13	X			+2
18		X		
34	X			+1
40		X		
41		X		
19		X		
28		X		
33	X			+2
MEDIUM				
3	X			+2
4	X			+2
8	X			+1
10	X			+4
11		X		
12		X		
14		X		
16		X		
20		X		
24	X			+2
25	X			*
29	X			+4
30		X		
35	X			+4
36	X			+4
38	X			+4
42		X		
17	X			*
15	X			+3
LARGE				
6	X			+6
21	X			+8
26	X			+5
31	X			+6
32				
44		X		
45		X		
23		X		
5	X			+5

*Not Reported

Range and median for entire sample: Range: 0 to +16; Median: +1

Range and median for 19 schools reporting the number change: Range: +1 to 16; Median: +4

TABLE 6
CHANGE IN THE NUMBER OF CENTRAL OFFICE PERSONNEL

School	Increase	Remain the Same	Decrease	Number
SMALL				
1		X		
2		X		
7		X		
13		X		
18		X		
34		X		
40		X		
41		X		
19	X			3
28		X		
33		X		
MEDIUM				
3		X		
4		X		
8		X		
10		X		
11		X		
12		X		
14		X		
16		X		
20		X		
24	X			1
25		X		
29		X		
30		X		
35		X		
36		X		
38		X		
42		X		
17		X		
15		X		
LARGE				
6		X		
21				
26		X		
31		X		
32		X		
44		X		
45		X		
23		X		
5		X		

*Not Reported

Range and median for entire sample: Range: +3 to 0; Median: 0

Range and median for the 2 schools reporting a change: Range: +3 to +1; Median: +2

TABLE 7
CHANGE IN THE NUMBER OF SPECIAL TEACHERS

School	Increase	Remain the Same	Decrease	Number
SMALL				
1		X		
2		X		
7				
13		X		
18		X		
34		X		
40		X		
41		X		
19	X			5
28		X		
33		X		
MEDIUM				
3		X		
4		X		
8		X		
10				
11		X		
12		X		
14		X		
16		X		
20		X		
24	X			2
25		X		
29		X		
30		X		
35		X		
36		X		
38		X		
42			X	-1
17		X		
15		X		
LARGE				
6		X		
21				
26		X		
31		X		
32				
44		X		
45		X		
23		X		
5		X		

Range and median for entire sample: Range: -1 to +5; Median: 0

Range and median for the 3 schools reporting a change: Range: -1 to +5; Median: +2

TABLE 8
CHANGE IN THE NUMBER OF SUBSTITUTE TEACHERS

School	Increase	Remain the Same	Decrease	Number
SMALL				
1		X		
2			X	-20
7				
13		X		
18		X		
34	X			+1
40		X		
41		X		
19	X			+5
28		X		
33		X		
MEDIUM				
3			X	*
4	X			+34
8		X		
10			X	*
11			X	*
12			X	*
14		X		
16		X		
20			X	*
24		X		
25		X		
29		X		
30		X		
35		X		
36			X	-4
38	X			+12
42		X		
17		X		
15		X		
LARGE				
6		X		
21		X		
26		X		
31		X		
32		X		
44				
45		X		
23			X	*
5	X			+48

*Not Reported

Range and median for entire sample: Range: -20 to +48; Median: 0

Range and median for the 7 schools reporting the number change: Range: -20 to +48; Median: +5

Tables 9 through 12 present the distributions of marks representing increase, remain the same, and decrease in the total amount of salary per school for each of the identified positions. Each table also presents the amount of salary increase or decrease for the position in each school disregarding normal increment. The amount of increase or decrease reported by the school was rounded to the nearest hundred. The range and median score of salary for the positions were identified for the entire sample and for the schools reporting the amount of change. Only one school, School 19, reported an increase in salary for special teachers; the amount of that increase was $4,400. In addition, School 19 was the only school to report an increase in salary for central office personnel; the amount of that increase was $1,100. None of the schools reported any increases or decreases in salary for the positions of paid student teachers and custodians.

TABLE 9
COSTS FOR UNIT LEADERS' SALARIES

School	Increase	Remain the Same	Decrease	Amount per School (to nearest hundred)
SMALL				
1		X		
2		X		
7	X			$1500
13		X		
18	X			1000
34	X			500
40		X		
41		X		
19		X		
28		X		
33	X			500
MEDIUM				
3		X		
4		X		
8		X		
10		X		
11		X		
12	X			300
14		X		
16		X		
20	X			400
24		X		
25				4000
29		X		
30		X		
35	X			1200
36		X		
38		X		
42		X		
17		X		
15				
LARGE				
6		X		
21	X			1200
26		X		
31		X		
32				
44		X		
45		X		
23				
5	X			*

*Not Reported

Range and median for the entire sample: Range: 0 to +$4000; Median: 0

Range and median for the 9 schools reporting the amount of change: Range: +300 to +$4000; Median: +$1000

TABLE 10
CHANGE IN OTHER CERTIFIED TEACHERS' SALARIES

School	Increase	Remain the Same	Decrease	Amount per School
SMALL				
1		X		
2		X		
7				
13		X		
18		X		
34		X		
40		X		
41		X		
19			X	*
28		X		
33		X		
MEDIUM				
3		X		
4		X		
8		X		
10				
11		X		
12		X		
14		X		
16		X		
20	X			$7500
24		X		
25		X		
29		X		
30		X		
35			X	-1500
36		X		
38		X		
42		X		
17		X		
15		X		
LARGE				
6		X		
21				
26		X		
31		X		
32				
44		X		
45		X		
23		X		
5		X		

*Not Reported

Range and median for entire sample: Range: +$7500 to -$1500; Median: 0

Range and median for the 2 schools reporting the amount of change: Range: +$7500 to -$1500; Median: +$3000

TABLE 11
CHANGE IN PAID PARAPROFESSIONALS' SALARIES

School	Increase	Remain the Same	Decrease	Amount per School
SMALL				
1		X		
2	X			$4800
7				
13	X			3600
18		X		
34	X			*
40		X		
41		X		
19		X		
28				
33		X		
MEDIUM				
3	X			6800
4		X		
8		X		
10				
11		X		
12		X		
14		X		
16		X		
20	X			*
24		X		
25		X		
29	X			600
30		X		
35	X			*
36		X		
38	X			7000
42		X		
17		X		
15	X			*
LARGE				
6		X		
21	X			*
26	X			*
31		X		
32				
44		X		
45		X		
23				
5	X			2400

*Not Reported

Range and median for the entire sample: Range: 0 to +$7000; Median: 0

Range and median for the 6 schools reporting the amount of change: Range: +$600 to +$7000; Median: +$4200

TABLE 12
CHANGE IN SUBSTITUTE TEACHERS' SALARIES

School	Increase	Remain the Same	Decrease	Amount per School
SMALL				
1		X		
2	X			$400
7				
13		X		
18		X		
34	X			300
40		X		
41		X		
19		X		
28		X		
33		X		
MEDIUM				
3			X	-2700
4		X		
8		X		
10			X	-600
11			X	-300
12		X		
14		X		
16		X		
20		X		
24				
25		X		
29		X		
30		X		
35		X		
36		X		
38	X			500
42		X		
17		X		
15		X		
LARGE				
6		X		
21				
26		X		
31		X		
32				
44		X		
45		X		
23				
5	X			1100

Range and median for the entire sample: Range: -$2700 to +$1100; Median: 0

Range and median for the 7 schools reporting the amount of change: Range: -$2700 to +$1100; Median: +$300

Under the category of staff development expenditures there are three areas: inservice materials, workshops and conferences, and consultant services. Tables 13 through 15 present (a) the distributions of marks representing increases, remain the same, and decreases of expenditures in each of these areas; (b) the amount of increase or decrease in expenditures in each of the areas; and (c) the ranges and median scores for the entire sample and for the schools reporting the amount of change.

TABLE 13
CHANGE IN COST FOR STAFF DEVELOPMENT INSERVICE MATERIALS

School	Increase	Remain the Same	Decrease	Amount
SMALL				
1		X		
2		X		
7	X			*
13	X			$200
18		X		
34	X			400
40		X		
41	X			*
19		X		
28	X			200
33	X			300
MEDIUM				
3		X		
4		X		
8	X			100
10	X			2500
11		X		
12	X			200
14	X			200
16	X			1000
20	X			100
24	X			300
25	X			1000
29	X			200
30	X			200
35		X		
36	X			100
38		X		
42		X		
17	X			300
15				
LARGE				
6		X		
21		X		
26	X			400
31	X			500
32				
44		X		
45		X		
23				
5		X		

*Not Reported

Range and median for entire sample: Range: 0 to +$2500; Median: +$150

Range and median for the 18 schools reporting the amount of change: Range: +$100 to +$2500; Median: +$250

TABLE 14
CHANGE IN COST FOR STAFF DEVELOPMENT WORKSHOPS AND CONFERENCES

School	Increase	Remain the Same	Decrease	Amount
SMALL				
1	X			$500
2	X			200
7	X			500
13	X			400
18	X			200
34	X			800
40		X		
41		X		
19	X			300
28	X			100
33	X			200
MEDIUM				
3	X			100
4	X			2100
8	X			500
10	X			500
11		X		
12	X			800
14	X			1200
16	X			400
20	X			300
24		X		
25	X			6000
29	X			500
30	X			400
35	X			4000
36	X			200
38		X		
42		X		
17	X			500
15				
LARGE				
6	X			500
21		X		
26	X			900
31	X			1000
32				
44		X		
45		X		
23				
5	X			200

Range and median for the entire sample: Range: 0 to +$6000; Median: +$400

Range and median for the 27 schools reporting the amount of change: Range: +$100 to +$6000; Median: +$500

TABLE 15
CHANGE IN COST FOR STAFF DEVELOPMENT CONSULTANT SERVICES

School	Increase	Remain the Same	Decrease	Amount
SMALL				
1		X		
2		X		
7				
13		X		
18		X		
34		X		
40		X		
41		X		
19		X		
28		X		
33	X			$300
MEDIUM				
3		X		
4		X		
8		X		
10		X		
11		X		
12		X		
14	X			300
16		X		
20		X		
24		X		
25		X		
29		X		
30		X		
35		X		
36	X			300
38		X		
42		X		
17		X		
15				
LARGE				
6		X		
21		X		
26	X			500
31	X			*
32		X		
44		X		
45		X		
23				
5		X		

*Not Reported

Range and median for the entire sample: Range: 0 to +$500; Median: 0

Range and median for the 4 schools reporting the amount of change: Range: +$300 to +$500; Median: +$300

Under the category of instructional materials and equipment, there are four areas: (a) special expendable materials, (b) special equipment, (c) efficient use of materials, and (d) efficient use of equipment. Tables 16 and 17 present (a) the distribution of marks representing increases, remain the same, and decreases of expenditures, instructional materials, and equipment respectively; (b) the amount of increase or decrease in expenditures; and (c) the ranges and median scores for the entire sample and for the schools reporting the amount of change. Tables 18 and 19 present (a) the distributions of marks representing increases, remain the same, and decreases in percentage of use of materials and equipment; (b) the percent of increase or decrease in efficient use of materials and equipment; and (c) the ranges and median scores for the entire sample and for the schools reporting the amount of change.

TABLE 16
CHANGE IN COST FOR SPECIAL EXPENDABLE MATERIALS

School	Increase	Remain the Same	Decrease	Amount
SMALL				
1		X		
2		X		
7				
13	X			$1100
18		X		
34	X			1200
40	X			*
41	X			*
19	X			*
28	X			*
33	X			500
MEDIUM				
3				
4				
8				
10	X			2000
11		X		
12		X		
14	X			2500
16		X		
20	X			1000
24				
25		X		
29	X			1500
30	X			1200
35		X		
36	X			1000
38		X		
42	X			1000
17		X		
15	X			*
LARGE				
6		X		
21		X		
26		X		
31	X			3500
32				
44				
45	X			1000
23				
5				

*Not Reported

Range and median for the entire sample: Range: 0 to +$3500; Median: 0

Range and median for the 12 schools reporting the amount of change: Range: +$500 to +$3500; Median: +$1150

TABLE 17
CHANGE IN COST FOR SPECIAL EQUIPMENT

School	Increase	Remain the Same	Decrease	Amount
SMALL				
1		X		
2		X		
7				
13		X		
18		X		
34	X			$1500
40	X			*
41	X			300
19	X			*
28	X			*
33		X		
MEDIUM				
3		X		
4		X		
8		X		
10				
11		X		
12		X		
14	X			2000
16				
20	X			1500
24				
25		X		
29		X		
30		X		
35		X		
36	X			500
38		X		
42	X			500
17		X		
15				
LARGE				
6		X		
21		X		
26		X		
31	X			3500
32				
44	X			1300
45		X		
23				
5	X			1000

*Not Reported

Range and median for the entire sample: Range: 0 to +$3500; Median: 0

Range and median for the 9 schools reporting the amount of change: Range: +$300 to +$3500; Median: +$1300

TABLE 18
CHANGE IN EFFICIENT USE OF MATERIALS (%)

School	Increase	Remain the Same	Decrease	% Amount
SMALL				
1	X			50%
2	X			25
7	X			
13	X			60
18		X		
34	X			25
40	X			20
41	X			20
19	X			40
28	X			50
33	X			25
MEDIUM				
3		X		
4	X			20
8	X			50
10	X			40
11			X	-10
12	X			25
14	X			50
16	X			15
20		X		
24	X			8
25	X			50
29	X			50
30	X			25
35		X		
36	X			99
38	X			10
42	X			25
17		X		
15	X			80
LARGE				
6		X		
21	X			30
26		X		
31	X			20
32				
44	X			10
45	X			10
23				
5	X			10

*Not Reported

Range and median for the entire sample: Range: -10% to +99%; Median: +23%

Range and median for the 29 schools reporting the amount of change: Range: -10% to +99%; Median: +25%

TABLE 19
CHANGE IN EFFICIENT USE OF EQUIPMENT (%)

School	Increase	Remain the Same	Decrease	% Amount
SMALL				
1	X			50%
2	X			25
7	X			*
13	X			60
18		X		
34	X			25
40				
41				
19	X			60
28	X			50
33	X			50
MEDIUM				
3		X		
4	X			20
8	X			40
10	X			40
11			X	-10
12	X			25
14	X			50
16	X			15
20	X			90
24		X		
25	X			50
29	X			25
30	X			40
35		X		
36	X			99
38	X			10
42	X			25
17		X		
15	X			85
LARGE				
6		X		
21	X			40
26		X		
31	X			20
32				
44	X			25
45	X			10
23				
5	X			10

*Not Reported

Range and median for the entire sample: Range: -10% to +99%; Median: +25%

Range and median for the 27 schools reporting the amount of change: Range: -10% to +99%; Median: +40%

Table 20 presents the amount of money spent for remodeling of the physical plant and for furnishings. The ranges and median scores for the entire sample and for the schools reporting the amount are indicated.

TABLE 20
CHANGE IN COSTS RELATED TO SCHOOL PLANT AND FURNISHINGS

School	Plant Remodeling	Furnishings
SMALL		
1		
2	$410	
7		
13	365	$400
18		
34	450	200
40		
41		
19	500	1700
28	1500	
33	300	
MEDIUM		
3	3348	
4		
8	180	
10	15000	
11	16000	7000
12		
14		
16		
20	2000	
24	80	1500
25		
29		
30		
35		
36		
38		
42	500,000	
17		
15		
LARGE		
6		
21	1200	
26	3000	500
31		
32		
44		
45		
23	10000	
5		

PLANT: Range and median for entire sample:

Range: 0 to +$500,000
Median: 0

Range and median for the 16 schools reporting the amount:

Range: +$80 to +$500,000
Median: +$1350

FURNISHINGS:

Range and median for entire sample:

Range: 0 to +$7000
Median: 0

Range and median for the 16 schools reporting the amount:

Range: +$200 to +$7000
Median: +$1000

Some of the schools received money for the specific purpose of implementing IGE/MUS-E. Table 21 presents the amount of revenues received and their sources. The range and median scores were identified across the matrix for each source of funding as well as down the matrix for each of the three size stratifications.

TABLE 21
SOURCES OF FUNDING

Source	School Size			
	Small	Medium	Large	
Federal	$30,000	$13,000 $ 1545	$300	Range: $300 to $30,000 Median: $7272
State			$400	
Local	$6000 $ 300	$ 750 $2139 $3500 $2500 $ 558 $5000 $1000	$1600 $ 50 $1300	Range: $50 to $6000 Median: $1450
Gifts or Grants		$ 150 $7000		Range: $150 to $7000 Median: $3575
Other				
	Range: $300 to $30,000 Median: $6000	Range: $150 to $13,000 Median: $2139	Range: $50 to $1600 Median: $400	

The respondents were asked to estimate if expenditures for each of the five categories would increase, decrease, or not reoccur in the second year (1972-73) as compared to the first year of implementation (1971-72). Table 22 presents the results. The number and proportion of responses for increase, decrease, not reoccur, and no response were calculated for each of the five categories of expenditures.

TABLE 22
ESTIMATED COSTS FOR 1972-1973

Category	Increase	Decrease	Not Reoccur	No Response
Student Costs	No. 13 % 33.33%	8 20.51%	16 41.03%	2 5.13%
Staff Expenditures	13 33.33%	8 20.51%	16 41.03%	2 5.13%
Staff Development Expenditures	12 30.77%	11 28.21%	12 30.77%	4 10.26%
Instructional Materials and Equipment	14 35.90%	11 28.21%	13 33.33%	1 2.56%
Physical Plant and Furnishings	5 12.82%	8 20.51%	22 56.41%	4 10.26%

Table 23 presents the total amount of increase or decrease of expenditures each school reported for the categories of student costs, staff costs, staff development, materials and equipment, and plant and furnishings. Note the sign accompanying the expenditure amount: a plus (+) indicates an increase, and a minus (-) indicates a decrease. A blank indicates that no increase or decrease was reported for that category.

TABLE 23
SUMMARY INFORMATION

School	Student Costs	Staff Costs	Staff Development	Materials and Equipment	Plant and Furnishings
SMALL					
1			$500		
2	$-175	$5200	200		$410
7		1500	500		
13		3600	600	$1100	365
18		1000	200		
34	-100	3800	1200	2700	650
40				300	
41					2200
19		5500	300		1500
28			300		300
33		500	800	500	
MEDIUM					
3		4100	100	900	3348
4			2100		
8			600		180
10		-600		3000	15000
11		-300			23000
12		300	1000		
14			1700	5500	
16			1400		
20		7900	400	2500	2000
24			2500	500	1580
25		4000	7000		
29	-100	600	700	1500	
30			600	1200	
35		-300	4000		
36			600	1500	
38		7500			
42	-750			1500	500,000
17			400		
15					
LARGE					
6			500		
21		1200			1200
26			1800		3500
31			1500	7000	
32					
44				1300	
45				1000	
23					10000
5		3500	200	1000	

The ranges and median scores for the total amount of increases and decreases in expenditures for each of the five categories were calculated and reported for each of the three stratifications in Table 24.

TABLE 24
SUMMARY INFORMATION
(RANGES AND MEDIANS)

Categories	School Size		
	Small	Medium	Large
Student Costs	Range: -$175 to 0 Median: 0	Range: -$750 to 0 Median: 0	Range: 0 to 0 Median: 0
Staff Costs	Range: 0 to $5500 Median: $1000	Range: -$600 to $7900 Median: 0	Range: 0 to $3500 Median: 0
Staff Development	Range: 0 to $1200 Median: $300	Range: 0 to $7000 Median: $600	Range: 0 to $1800 Median: 0
Materials and Equipment	Range 0 to $2700 Median: 0	Range: 0 to $5500 Median: 0	Range: 0 to $7000 Median: 0
Plant and Furnishings	Range: 0 to $2200 Median: $300	Range: 0 to $500,000 Median: 0	Range: 0 to $10,000 Median: 0

* Not Reported

IV
Summary, Conclusions, and Implications

Presented in this section are a summary of the survey and the conclusions and implications drawn from the results of it. The summary includes a review of the purpose and design of the survey. Contained in the second part of this section are the conclusions drawn as a result of the survey and a discussion of the major findings. This section concludes with implications for practice and future research.

Summary

The Wisconsin Research and Development Center for Cognitive Learning and cooperating agencies have been developing and refining an alternative approach to traditional elementary education known as Individually Guided Education in the Multiunit Elementary School (IGE/MUS-E). IGE/MUS-E has been described as "the first alternative to the age-graded, self-contained elementary school in this century. It is a comprehensive system designed to produce higher educational achievement through providing for differences among students in rate of learning, learning styles, and level of motivation."[9]

The purpose of this study was to identify any increase or decrease in expenditures among a stratified sample of schools during their first year of implementing IGE/MUS-E.

A review of the literature related to cost studies in education revealed three basic types: (a) cost studies conducted by those involved in the "scientific management movement," (b) cost studies conducted by those in search for the "cost-quality" relationship in education, and (c) the comparison of school expenditures among states and among school districts. Due to the traditional structure of school accounting it has been difficult to collect data regarding the configuration of human and material resources being applied to various educational programs. It was also found that very little, if any, research has been conducted on the relationship of innovation implementation and costs.

The major question posed in the study was: Are there any increases or decreases in expenditures in the categories of student costs, staff costs, staff development expenditures, instructional materials and equipment, and plant and furnishings among a stratified sample of schools during their first year of implementing IGE/MUS-E?

A sample of IGE/MUS-E schools located in Colorado, Connecticut, Illinois, Minnesota, Ohio, South Carolina, Wisconsin, and Indianapolis, Indiana, was selected based on the following criterion: the school must be beginning its second full year of multiunit operations, making its first year of implementation the 1971-72 school year. Forty-four recommended schools qualified to participate. Ultimately, 39 schools returned completed survey instruments.

The survey instrument was developed at the R & D Center and then reviewed, piloted, and critiqued by practicing IGE/MUS-E principals in separate Wisconsin school districts. The instrument was modified for use in the study as indicated by a pilot test.

Descriptive statistical analyses were utilized, and the range of scores and the median score were identified for the various program elements. The range and median score were used in order to identify what "typically" is spent in those areas for implementing IGE/MUS-E.

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[9] Klausmeier, H. J., "The Multiunit Elementary School and Individually Guided Education," Phi Delta Kappan, 53, November, 1971. Pp. 181-186.

Findings and Conclusions

The findings regarding changes in costs due to implementing IGE/MUS-E during the first year of implementation are as follows:

1. Thirty-two schools reported no change in vandalism; seven reported a decrease; none reported an increase. Four of the seven schools which reported a decrease also reported the amount of decrease; the median for the reported decreases was $325.
2. Twenty-nine of the schools reported no change in the number of certified teachers; five schools reported a decrease; three schools reported an increase.
3. Sixteen of the schools reported no change in the number of paid paraprofessionals; no schools reported a decrease; 22 schools reported an increase. For the 19 schools reporting the number, the median increase was four.
4. Thirty-five of the schools reported no change in the number of central office personnel; two reported an increase.
5. Thirty-two of the schools reported no change in the number of special teachers; one school reported a decrease; two schools reported an increase.
6. Twenty-four of the schools reported no change in the number of substitute teachers; eight schools reported a decrease; five schools reported an increase.
7. Only one of the 39 schools reported an increase in number of paid student teachers.
8. Only one of the 39 schools reported an increase in number of custodians.
9. Disregarding normal salary increments, 26 of the schools reported no change in the amount expended for unit leaders' salaries; no schools reported a decrease; 10 schools reported an increase. Nine of the 10 schools which reported an increase also reported the amount of increase; the median for the reported increases per school was $1000.
10. Disregarding normal salary increments, 32 of the schools reported no change in the amount expended for certified teachers' salaries; two schools reported a decrease; one school reported an increase.
11. Disregarding normal salary increments, 22 of the schools reported no change in the amount expended for paid paraprofessionals' salaries; no schools reported a decrease; 12 reported an increase. Six of the 12 schools which reported an increase also reported the amount of increase; the median for the reported increases per school was $4200.
12. Disregarding normal salary increments, 27 of the schools reported no change in the amount expended for substitute teachers' salaries; three schools reported a decrease; three schools reported an increase.
13. Disregarding normal salary increments, only one school of the 39 reported a change in salary for special teachers. That change was an increase of $4400.
14. Disregarding normal salary increments, only one of the 39 schools reported an increase in salary for central office personnel; that change was an increase of $1100.
15. Disregarding the normal salary increments, all 39 of the schools reported no change in the amount expended for paid student teachers' salaries.
16. Disregarding the normal salary increments, all 39 of the schools reported no change in the amount expended for custodians' salaries.
17. Sixteen of the schools reported no change in costs for inservice materials; no schools reported a decrease; 20 schools reported an increase. Eighteen of the 20 schools which reported an increase also reported the amount of increase; the median for the reported increases was $250.
18. Nine of the schools reported no change in costs for workshops and conferences; no schools reported a decrease; 27 reported an increase. The median increased cost for the 27 schools was $500.
19. Thirty-one of the schools reported no change in costs for consultant services; no schools reported a decrease; five schools reported an increase.
20. Thirteen of the schools reported no change in costs for special expendable materials; no schools reported a decrease; 17 schools reported an increase. Twelve of the 17 schools which reported an increase also reported the amount of increase;

the median for the reported increases was $1150.

21. Twenty of the schools reported no change in cost for special equipment; no schools reported a decrease; 12 schools reported an increase. Nine of the 12 schools which reported an increase also reported the amount of increase; the median for the reported increases was $1300.
22. Sixteen of the schools reported an increase in expenditures for school plant remodeling. The median for the entire sample was zero; the median for the 16 schools reporting an increase was $1350.
23. Six of the schools reported an increase in expenditures for furnishings. The median for the entire sample was zero; the median for the schools reporting an increase was $1000.

Ancillary Findings

1. Twenty-three of the schools reported no change in absenteeism; 13 reported a decrease; three reported an increase. The median for the schools reporting a change was -2%.
2. Seven of the schools reported no change in efficient use of materials; one school reported a decrease; 29 schools reported an increase. Twenty-eight of the schools which reported an increase also reported the amount of increase; the median for the reported increases was 25%.
3. Seven of the schools reported no change in efficient use of equipment; one school reported a decrease; 26 reported an increase. Twenty-five of the 26 reporting an increase also reported the amount of increase; the median for the reported increases was 40%.
4. Nineteen of the 39 schools received additional revenue specifically designated for IGE/MUS-E implementation. Four schools received money from federal sources; one received money from state sources; 12 received money from local sources; two received money from gifts and grants.
5. Thirteen schools estimated that student costs for 1972-1973 would increase; eight estimated student costs would decrease; 16 estimated that additional student costs would not reoccur; two schools had no response.
6. Thirteen schools estimated that costs for 1972-1973 in the area of staff expenditures would increase; eight estimated staff expenditures would decrease; 16 estimated that additional staff expenditures would not reoccur; two schools had no response.
7. Twelve schools estimated that for 1972-1973 in the area of staff development expenditures would increase; 11 estimated additional staff development expenditures would decrease; 12 estimated that additional staff development expenditures would not reoccur; four schools had no response.
8. Fourteen schools estimated that costs for 1972-1973 in the area of instructional materials and equipment would increase; 11 estimated instructional materials and equipment would decrease; 13 estimated that additional instructional materials and equipment costs would not reoccur; one school had no response.
9. Five schools estimated that costs for 1972-1973 in the area of physical plant and furnishings costs would increase; eight estimated physical plant and furnishings costs would decrease; 22 estimated that additional physical plant and furnishings costs would not reoccur; four schools had no response.

Based on the findings of the study the following conclusions were drawn with respect to the first-year implementation costs of IGE/MUS-E:

In the area of student costs,

1. The majority of the schools reported no increases or decreases in expenditures for vandalism and pupil absenteeism.

In the area of staff costs,

2. The majority of the schools reported no increase or decrease in the number of certified teachers, central office personnel, special teachers, substitute teachers, paid student teachers, and custodians.
3. The majority of the schools reported an increase in the number of paid paraprofessionals; the median increase was four.
4. Disregarding normal salary increments, the majority of the schools reported

no increase or decrease in expenditures for salaries of unit leaders, certified teachers, paid paraprofessionals, substitute teachers, special teachers, central office personnel, paid student teachers, and custodians.

In the area of staff development,

5. The majority of the schools reported an increase in expenditures for in-service materials; the median reported increase was $250.
6. The majority of the schools reported an increase in expenditures for workshops and conferences; the median reported increase was $500.
7. The majority of the schools reported no increase or decrease in expenditures for consultant services.

In the area of instructional materials and equipment,

8. The majority of the schools reported no increase or decrease in expenditures for instructional materials and equipment.

In the area of plant and furnishings,

9. The majority of the schools reported no increase or decrease in expenditures for school plant and furnishings.

Ancillary items

10. The majority of the schools reported increases in the efficient use of materials and equipment.
11. Half of the schools received additional revenue specifically designated for IGE/MUS-E implementation.
12. There was a mixed opinion among schools as to estimated costs for 1972-1973 in the area of staff costs, staff expenditures, staff development expenditures, instructional materials and equipment, and physical plant and furnishings.

The conclusions that were drawn from the study are limited, of course, to the population of multiunit elementary schools from which the sample was drawn. The conclusions are further limited by the use of self-report instruments. The generalizability of a study with these limitations must be constrained by the degree to which acceptance can be made of the assumptions underlying the statistical procedures.

Implications

The evidence concerning IGE/MUS-E implementation costs that has been accumulated and presented in this study warrants the following implications for further research. Several questions which merit further research are suggested by the results of the study. Educational researchers may find the following questions of interest:

1. What specific factors of IGE/MUS-E cause the increases and decreases in expenditures?
2. What are the actual increases in efficient use of materials and equipment?
3. Is there a relationship between costs and effectiveness of implementation? If so, what is that relationship, and what specific cost factors influence implementation effectiveness?
4. Are there other items not examined in the study that would indicate an increase or decrease in costs of implementing IGE/MUS-E?
5. Would the results of this study be similar across a different sample of multiunit elementary schools?
6. What are the dollar cost differences between IGE/MUS-E schools and traditional schools?

In conclusion, it is the author's hope that this study will provide insight into the implementation of IGE/MUS-E and that it will encourage other researchers to investigate more precisely those questions raised by this study.

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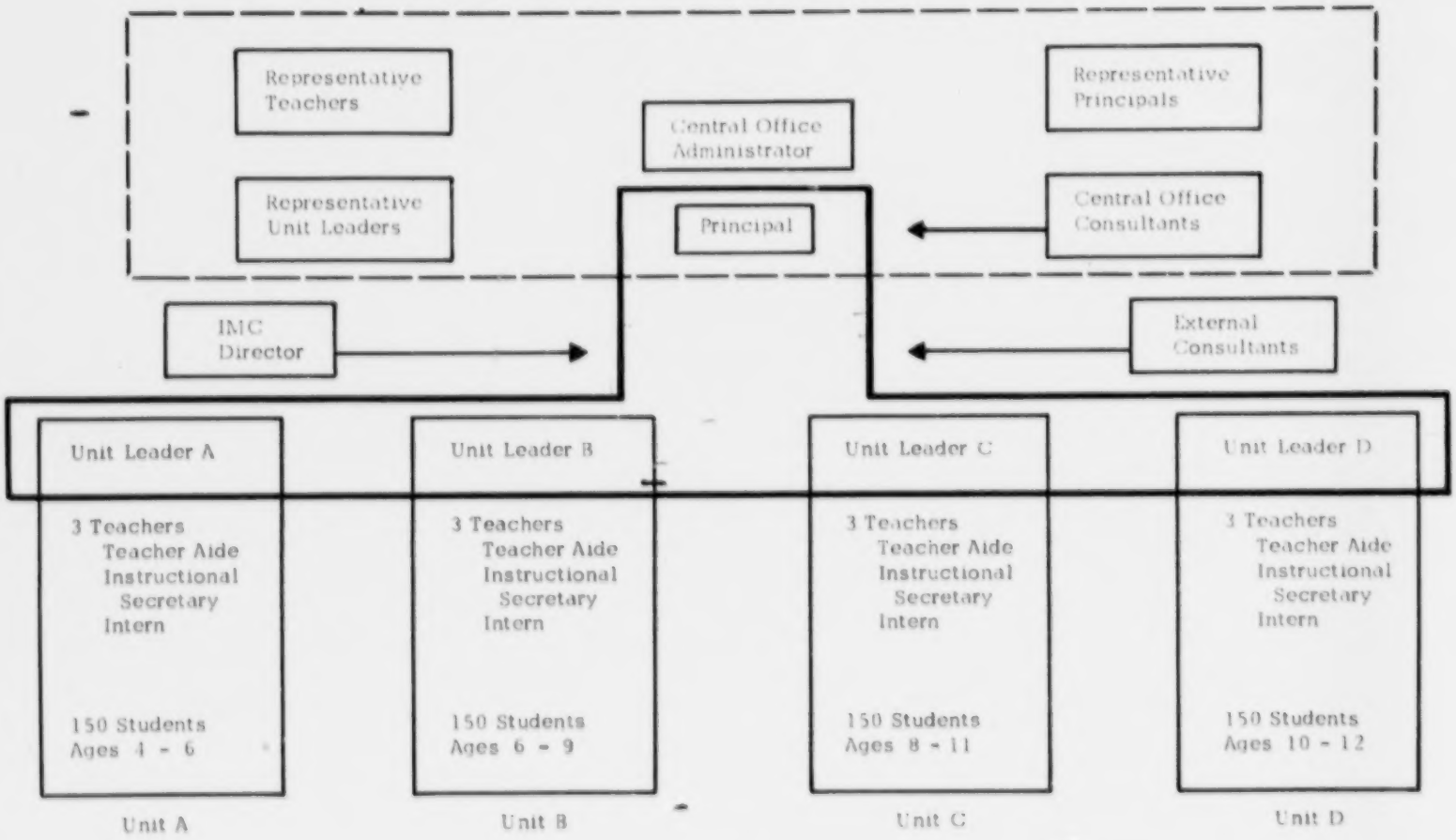
GPO 804-076-6

APPENDIX A

ORGANIZATIONAL CHART OF A MULTIUNIT SCHOOL

ORGANIZATIONAL CHART OF A MULTIUNIT SCHOOL OF 600 STUDENTS

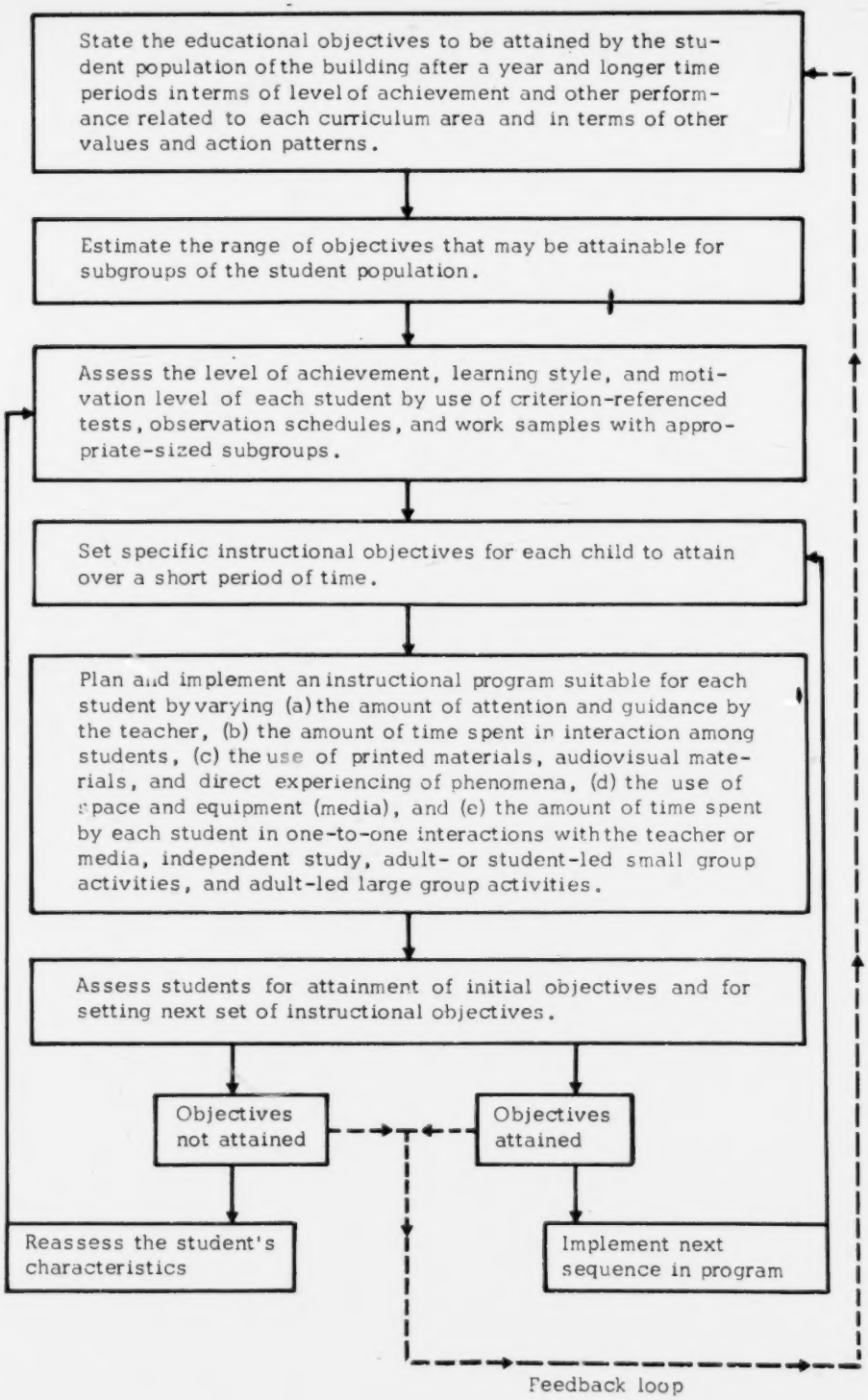


Building Instructional Improvement Committee

System-Wide Policy Committee

APPENDIX B

INSTRUCTIONAL PROGRAMING MODEL


State the educational objectives to be attained by the student population of the building after a year and longer time periods in terms of level of achievement and other performance related to each curriculum area and in terms of other values and action patterns.
Estimate the range of objectives that may be attainable for subgroups of the student population.
Assess the level of achievement, learning style, and motivation level of each student by use of criterion-referenced tests, observation schedules, and work samples with appropriate-sized subgroups.
Set specific instructional objectives for each child to attain over a short period of time.
Plan and implement an instructional program suitable for each student by varying (a) the amount of attention and guidance by the teacher, (b) the amount of time spent in interaction among students, (c) the use of printed materials, audiovisual materials, and direct experiencing of phenomena, (d) the use of space and equipment (media), and (e) the amount of time spent by each student in one-to-one interactions with the teacher or media, independent study, adult- or student-led small group activities, and adult-led large group activities.
Assess students for attainment of initial objectives and for setting next set of instructional objectives.
Objectives not attained
Objectives attained
Reassess the student's characteristics
Implement next sequence in program
Feedback loop

GPO 804-076-5

APPENDIX C

FORMS USED IN THIS STUDY

obtaining the desired information. Upon receipt of your recommendations, contact with the schools will be made, the study will be explained and schools will be asked to participate.

Thank you for your help! Any further correspondence you may have regarding the study may be directed to Nancy Evers.

Sincerely,

Herbert J. Klausmeier
V. A. C. Henmon Professor
of Educational Psychology
Director

HJK/adk

Enclosure

RECOMMENDED SCHOOLS FOR THE IGE/MUS-E IMPLEMENTATION COST STUDY

		Name of School	# of Pupils	Principal	Address & Phone	District
Small (less than 300)	1.					
	2.					
Medium (300-700)	1.					
	2.					
Large (700 and more)	1.					
	2.					

Please return to:

Nancy Evers
Wisconsin Research and Development Center
1404 Regent Street
Madison, Wisconsin 53706

SURVEY OF COSTS TO IMPLEMENT IGE/MUS-E

Conducted by Wisconsin R & D Center for Cognitive Learning

Rationale and General Instructions

The Wisconsin R & D Center, as part of its obligations to educational personnel at the national, state, and local levels, should supply fiscal information concerning the costs of implementing IGE/MUS-E during the first year of implementation and thereafter. To do this, we need accurate cost information from a sample of schools that implemented MUS-E's for the first time in 1971-72 and are implementing in 1972-73. We recognize that costs of implementing IGE may vary among schools for some of the same reasons that total costs of education per child vary among school districts. Therefore, we also need other kinds of descriptive information about your school, school district, and community. In reporting the results of this survey, we shall identify the number of schools by state but will not make information available concerning any particular school except to the persons responsible for conducting and reporting the study. Information received from you will be coded for statistical analysis and reporting so that your school cannot be identified.

Please provide the information to the best of your ability. Call Nancy Evers, collect, Area Code 608, 263-4224, if you experience any difficulty with an item or need an interpretation of any item.

GPO 804-076-4

Part I. DESCRIPTIVE INFORMATION CONCERNING YOUR SCHOOL AND COMMUNITY

1. Person completing this form:

Name_____

Position_____

Address_____

_____

Phone_____

2. Name of School_____

3. School District_____

4. _____ Enter the total number of elementary schools in your district, 1971-72.

5. _____ Enter the total number of MUS-E's in your district, 1971-72.

6. Check the school year in which your school building first implemented IGE/MUS-E:

_____ 1970-71 _____ 1971-72

7. Check the category which best describes your school district:

_____ Large city - total population of 250,000 or more. Center of a metropolitan area with contiguous satellite suburbs.

_____ Medium-sized city - total population of 50,000 - 250,000. Not adjacent to a large city.

_____ Small city - total population of 10,000 - 50,000. Not adjacent to a large or medium-sized city.

(Continued)

_____ Established suburb - adjacent to a large or medium-sized city. A major portion of the land area developed. Relatively stable pattern of population growth.

_____ Developing suburb - adjacent to a large or medium-sized city. A major portion of the land area not yet developed. Relatively stable pattern of population growth.

_____ Agricultural service center - total population less than 10,000. Substantial portion of school enrollment drawn from area outside the population center. Economy oriented to services or agriculturally related industry.

_____ Other - (Indicate characteristics).

8. Are estimates available of the income level of families who have children in attendance at your school building?

Yes _____ No _____

If yes, what is the estimated average family income _____

9. Estimate roughly the percent of the parents and/or guardians of the children of your school, according to the following occupations and sources of income:

_____% Professional and semiprofessional (nurses, teachers, lawyers, doctors, etc.)

_____% Business owners and managers

_____% Secretarial and clerical

_____% Skilled and semiskilled workers

_____% Farm owners

_____% Unskilled workers and service personnel

_____% Unemployed and others receiving Social Security and other federal, state, and local welfare payments.

10. Enter the average daily attendance for the:

1970-1971 school year _____

1971-1972 school year _____

11. Enter the average per pupil expenditures for the:

1970-1971 school year _____

1971-1972 school year _____

12. Was there a significant change in pupil-teacher ratio? (More than five students/teacher change).

If yes, was it due to: (Check the appropriate item)

____ local policy, independent of IGE/MUS-E

____ state policy, independent of IGE/MUS-E

____ implementing IGE/MUS-E

13. Do you as the principal in connection with the IIC have autonomy in how your school building's budgeted monies are allocated for: (Indicate the degree of autonomy you have)

	No Autonomy				Complete Autonomy
Instructional materials	1	2	3	4	5
	No Autonomy				Complete Autonomy
Equipment	1	2	3	4	5
	No Autonomy				Complete Autonomy
Staff positions	1	2	3	4	5

14. In the spaces below, list the names of your units and for each unit record the age span of the students, the number of pupils, the number of teachers, the number of aides, and the number of student teachers or interns per semester.

(Continued)

Name of unit	Student Age Span	Number of Pupils	Number of Certified Teachers	Number of Aides	# of Student Tchrs. per semester
1.					
2.					
3.					
4.					
5.					
6.					

15. IGE/MUS-E inservice materials were obtained by: (Check the appropriate item)

_____ Rental

_____ Purchase

_____ Both

_____ Other (specify): _____

16. List the curricular area to which the Instructional Programing Model as described in Individually Guided Education and the Multiunit Elementary School: Guidelines for Implementation was applied:

Name of Unit	Curricular Area
1.	
2.	
3.	
4.	
5.	
6.	

17. Identify the R & D Center developed curriculum (or curricula) which your school implemented during the 1971-72 school year by placing a check beside the appropriate item. Then give the number of students involved with the program.

_____ Wisconsin Design for Reading Skill Development (Word Attack)

_____ No. of Students

$_____ Total expenditure

_____ Wisconsin Design for Reading Skill Development (Study Skills)

_____ No. of Students

$_____ Total expenditure

_____ Developing Mathematical Processes

_____ No. of Students

$_____ Total expenditure

_____ None of these

Part II. WORKSHEET FOR DETERMINING INCREASED, DECREASED, OR CONSTANT COSTS AS A DIRECT RESULT OF IMPLEMENTING IGE/MUS-E DURING 1971-72

The expenditures identified by the Center that may increase, decrease, or remain constant as a direct result of implementing IGE/MUS-E are listed below. Please indicate whether there was a change as a result of implementing IGE/MUS-E for each of the items by placing a check (✓) in the column marked increased, remained the same, or decreased. If there was an increase or a decrease, report the amount of increase or decrease in the appropriate column. If the cost remained constant, put a '0' in both the increased and decreased column. Part III of this survey provides brief information regarding each main category of the worksheet.

Category	Increase	Remain the Same	Decrease	Total Amount for 1971-72		
				Unit	Increased	Decreased
A. Student Costs						
1. Vandalism				$ per year	$_____	$_____
2. Pupil Absenteeism				% per day	_____ %	_____ %
3. No. of pupils who were held back or promoted and therefore, will take more or less than 7 years to complete K-6.				Number	_____	_____
B. Staff Expenditures						
1. No. of positions, full and part time						
a. Certified teachers				Number	_____	_____
b. Paid Paraprofessionals				Number	_____	_____
c. Paid Student teachers				Number	_____	_____
d. Persons from central office (e.g. curriculum coordinator, psychologists, etc.)				Number	_____	_____
e. Special teachers of art, music, physical education				Number	_____	_____
f. Substitute teachers				Number	_____	_____
g. Custodians				Number	_____	_____
h. Other (specify): _____ _____				Number	_____	_____

Category	Increase	Remain the Same	Decrease	Total Amount for 1971-72		
				Unit	Increased	Decreased
2. Salary (disregard normal increment)						
a. Unit Leaders				$	$_____	$_____
b. Other certified teachers				$	$_____	$_____
c. Paid paraprofessionals				$	$_____	$_____
d. Paid student teachers				$	$_____	$_____
e. Persons from central office (e.g. curriculum coordinator, psychologist, etc.)				$	$_____	$_____
f. Special teachers of art, music, physical education				$	$_____	$_____
g. Substitute teachers				$	$_____	$_____
h. Custodians				$	$_____	$_____
i. Other (specify): _____ _____				$	$_____	$_____
C. Staff Development Expenditures						
1. Inservice materials (books, pamphlets, recordings, etc.)				$	$_____	$_____
2. Workshops and conferences (registration fees, travel, meals, lodging, etc. which was paid by the school)				$	$_____	$_____
3. Consultant services (from outside of the school system				$	$_____	$_____

Category	Increase	Remain the Same	Decrease	Total Amount for 1971-72		
				Unit	Increased	Decreased
D. Instructional Materials and Equipment						
1. Special expendable materials: Any items of an expendable nature, such as items that are consumed in use, purchased primarily as a result of implementing IGE/MUS-E (Examples: workbooks, instructional games, kits, etc.)				$	$_____	$_____
2. Special equipment: Any items of a non-expendable nature, such as items that are not consumed in use and have a relatively long life expectancy purchased primarily as a result of implementing IGE/MUS-E (Examples: audio-visual equipment, typewriters, etc.)				$	$_____	$_____
3. Efficient use of materials				Estimated %	_____%	_____%
4. Efficient use of equipment				Estimated %	_____%	_____%

E. Physical Plant and Furnishings

1. Did your school building undergo any remodeling and/or special construction in order to facilitate the implementation of IGE/MUS-E?

Yes _____ No _____

2. If yes, report the estimated cost of remodeling and/or special construction which your school did in order to facilitate the implementation of IGE/MUS-E.

Remodeling and/or Construction	Estimated Cost
a.	_____
b.	_____
c.	_____
d.	_____
Total	$_____

3. Report the total expenditures for the purchase of school furnishings (Examples: desks, tables, chairs, cabinets, etc.) which were bought in order to facilitate the implementation of IGE/MUS-E.

$_____

F. Sources of Funds

1. Did the school receive additional revenue specifically designated for IGE/MUS-E implementation?

Yes_____ No_____

If yes, what revenue receipts did the school receive specifically allocated for the implementation of IGE/MUS-E during the 1971-72 school year from each of the following sources?

Program Title	Amount Received
Federal Aids	
State Aids	
Local Funds	
Gifts or Grants	
Other Revenues	
	Total $

G. Estimation of Costs for 1972-1973

Compared to 1971-1972, for each of the following categories of expenditures, estimate if there will be any increase, decrease, or not reoccur in the second year (1972-1973). Indicate whether you think costs will increase, decrease, or not reoccur by placing a check (✓) in the appropriate column.

Category	Increase	Decrease	Not Reoccur
A. Student Costs			
B. Staff Expenditures			
C. Staff Development Expenditures			
D. Instructional Materials and Equipment			
E. Physical Plant and Furnishings			

Part III. SUMMARY OF WORKSHEET INFORMATION

For each of the following categories, enter the total amount of increase or decrease of expenditure in the appropriate column.

	Increase	Decrease
A. Total student costs	$	$
B. Total staff costs	$	$
C. Total staff development expenditures	$	$
D. Total instructional materials and equipment expenditure	$	$
E. Total plant and furnishings expenditures	$	$

Enter the algebraic sum of increases for 1971-72 _____

Enter the algebraic sum of decreases for 1971-72 _____

Enter the average daily attendance for 1971-72 _____

Average cost per child: (Check the appropriate item)

____ Increased

____ Decreased

Part IV. INFORMATION REGARDING EACH WORKSHEET CATEGORY

A. Student Costs

Immediate savings or increases occur if fewer or more dollars are spent as a result of theft or destruction of property that is replaced. Immediate savings or increases occur if pupil absenteeism increases or decreases and if this is a basis for receiving more or less federal, state, or local funds. Long term savings occur if more pupils spend fewer years in completing their elementary schooling; long term increases occur if more pupils spend more years in completing their elementary schooling. The Center wants increases or decreases in these items that are directly attributable to implementing IGE/MUS-E, not to other school district policies or conditions.

B. Staff Expenditures

Desired here are increases or decreases as a direct result of implementing IGE. Increases occur if unit leaders are paid above the salary they would have received if they had not become designated unit leaders; also if more staff of any kind is employed or for a greater proportion of the time in the building as a result of implementing IGE. Decreases occur if the

number or amount of time of any kind of personnel in a MUS-E building is reduced as a result of implementing IGE. For example, fewer central office personnel such as subject matter coordinator and psychologists; fewer teachers (or amounts of their time) including special teachers of music, art, reading or special education; substitute teachers when certified teachers and unit leaders are participating in staff development programs.

C. Staff Development Expenditures

Desired here are decreases or increases in inservice materials, workshops, consultants as a direct result of implementing the IGE/MUS-E concepts in comparison with maintaining traditional schooling and/or introducing other innovative concepts in traditional schools of the district. Thus, if the school district already gives 3 to 10 days of time to staff development district wide and IGE requires more or less than this, it should be indicated.

D. Instructional Materials

Desired here are increases or decreases as a direct result of implementing IGE. If your school has the same allocation for material as other traditional schools, there is neither an increase nor a decrease. If it has an increased or decreased allocation simply because it is MUS-E, indicate so. Similarly, if your school and a non MUS-E school are both implementing the Wisconsin Design for Reading Skill Development and the costs are more or less in your school, indicate so. Do not include the costs of curriculum innovations per se as an increased cost unless it actually costs more than in non MUS-E schools of your district or unless non MUS-E schools operate with no or fewer innovations than your school requires to be IGE.

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